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EXAMINER	
DAY, HERNG DER	
ART UNIT	**PAPER NUMBER**
2128	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/667,924	Applicant(s) SCHULTZ, PAUL	
	Examiner Herng-der Day	Art Unit 2128	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 October 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4,9-16 and 18* is/are rejected.

7)☒ Claim(s) *5-8,17,19 and 20* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *18 October 2004* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

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DETAILED ACTION

1. This communication is in response to Applicant's Response ("Response") to Office Action dated June 17, 2004, mailed October 18, 2004.

1-1. Claims 1-20 are pending.

1-2. Claims 1-20 have been examined.

Drawings

2. The formal drawings filed on October 18, 2004, have been disapproved because they introduce new matter and informalities into the drawings. 37 CFR 1.121(f) states that no amendment may introduce new matter into the disclosure of an application.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

2-1. No evidence in the original disclosure supports the change of arrow direction between circle 2 and S8-8 in Figure 3B.

2-2. Reference character "S1" has been used to designate two different steps in Figure 2.

2-3. It appears that "device todevice", as shown in step S8-10 of Figure 3B, should be "device to device".

2-4. It appears that "Ad system volume loss", as shown in step S8-11 of Figure 3B, should be "Add system volume loss".

Abstract

3. The abstract of the disclosure is objected to because it exceeds 150 words in length. Correction is required. See MPEP § 608.01(b).

Specification

4. The disclosure is objected to because of the following informalities:

Appropriate correction is required.

4-1. It appears that "select and air compressor", as described in line 2 of page 2, should be "select an air compressor".

4-2. It appears that "at least partially from the from auxiliary system/device", as described in lines 15-16 of page 12, should be "at least partially from the auxiliary system/device".

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1-4, 9-16, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Curtner et al., "Simulation-Based Features of the Compressed Air System Description Tool "XCEED™"", Proceedings of Building Simulation '97, volume 1, pages 27-32 renumbered as 1-6, hereafter referred to as Curtner, in view of Nishar et al., U.S. Patent 6,036,449 issued March 14, 2000, hereafter referred to as Nishar, and further in view of Li et al., U.S. Patent 6,477,518 B1 issued November 5, 2002, and filed January 31, 2000, hereafter referred to as Li.

6-1. Claim 1 is drawn to a method of designing a vehicle air system comprising:

- using a computer to simulate operation of a proposed vehicle air system over a time period, said proposed vehicle air system comprising an air compressor and a pneumatically operable device;
- calculating a duty cycle of said air compressor over said time period; and
- outputting said duty cycle.

Curtner teaches [Pg 1, left Col, 1st paragraph] a software tool for simulation of compressed air system that:

- allows engineers to create simulations of user-specified (proposed) compressed air systems;
- aids in capturing and manipulating information about an entire compressed air system in order to perform design and tradeoff analysis; and
- provides standardized reports and assessments (output) of compressed air system features [Pg 2, right Col, feature 7]

Curtner does not expressly teach simulating a vehicle air system, comprised of an air compressor and a pneumatically operable device, over a period of time, calculating the air compressor's duty cycle over a time period.

Nishar teaches [Col 2, lines 20 - 35] an air compressor system which provides air to a vehicle's air powered (pneumatically operable) devices such as service brakes, air suspension, windshield wipers, etc. Nishar further teaches [Col 6, lines 11 - 14] monitoring air compressor parameters such as duty cycle, cycle time, wet tank pressure and service break events of the air compressor.

Li teaches [Col 1, lines 17 - 29] that automotive vehicle design has advanced to a state in which computer-aided design techniques are frequently utilized to develop the new vehicle in a virtual environment and that computer-aided design is especially beneficial in optimizing the various systems incorporated within a vehicle, to maximize design and functional capabilities of the vehicle systems.

It would have been obvious to one of ordinary skill in the art, at the time of the invention, to modify the compressed air system simulation software tool as taught by Curtner to simulate a vehicle air compressor system comprised of an air compressor and air powered (pneumatic) devices as taught by Nishar to utilized computer-aided design techniques that are beneficial in the optimization of the various systems incorporated within a vehicle in order to maximize design and functional capabilities of the vehicle system under design as taught by Li.

6-2. Claim 2 is drawn to:

- comparing said duty cycle to a predefined threshold; and

- recommending modifications to said proposed vehicle air system if said duty cycle exceeds said threshold.

Curtner teaches [Pg 1, left Col, 2nd paragraph] a Software tool that allows engineers to construct simulations, perform design and tradeoff analysis of compressed air systems.

Curtner does not expressly teach comparing compressor's duty cycle to a predefined threshold and recommending modifications to the proposed air system if the duty cycle exceed said threshold.

Nishar teaches a method [Col 3, lines 29 -33] wherein a given mode of the air compressor is maintained for a predetermined period of time when the air compressor is operating between predetermined pressures (threshold) to prevent excessive cycling of the air compressor.

Li teaches [Col 7, lines 55 - 67] a method that evaluates a preliminary design using an analysis tool, compares the results of the evaluation to predetermined performance criteria (threshold), and if the analysis does not meet the predetermined performance criteria the method revises the characteristics of the preliminary design. Li further teaches [Col 1, lines 48 - 60] that it is known that knowledge-based design methods are being utilized in designing vehicle systems that provide advice, to the user of the method, learned from knowledge guidelines based on lessons learned from previous designs, and engineering and manufacturing experience and that advantageously, knowledge-based design techniques maximize the amount of knowledge utilized, while developing new vehicle systems in a minimal period of time.

It would have been obvious to one of ordinary skill in the art, at the time of the invention, to modify the compressed air system simulation software tool as taught by Curtner to monitor compressor cycling during a predetermined period of time, as taught by Nishar, and comparing

an evaluation of a preliminary design of the air supply system, using an analysis tool, to a predetermined performance criteria and providing advice/revising the preliminary design characteristics if the analysis does not meet the predetermined design characteristics in order to develop a new vehicle system in a minimal period of time as taught by Li.

6-3. Claim 3 is drawn to a time period that is equal to an average period of time that said proposed vehicle air system is expected to be operated per day.

Curtner teaches [Pg 6, Table 2 and corresponding text] component models that provide enough dynamic fidelity to model compressed air system transients to assess an existing system. Particularly, a Loads component that models user-selectable time profile as well as different variations of load flows.

Curtner does not expressly teach a user-selectable time profile that is equal to an average period of time the proposed vehicle air system is expected to be operated per day.

Nishar teaches [Col 8, lines 32 - 64] assessing the compressed air system performance under various traveling conditions over an average period of time in order to identify service diagnostics, such as air leaks as well as vehicle operating characteristics.

Li teaches [Fig. 6 and corresponding text] a computational fluid dynamics (CFD) module that simulates the performance of a chosen design to ensure that performance criteria, such as rules, guidelines or specifications are satisfied.

It would have been obvious to one of ordinary skill in the ad, at the time of the invention, to model a proposed compressed air system using the Load component taught by Curtner to assess the air system performance, over an average period of time and under various traveling

conditions to identify service diagnostics and vehicle operating characteristics, as taught by Nishar, and to ensure that performance criteria are satisfied as taught by Li.

6-4. Claim 4 is drawn to a method of simulating operation of a proposed vehicle air system over a time period that includes:

- simulating selective operation of said air compressor to add air to said proposed vehicle air system; and
- simulating selective operation of said pneumatically operable device to exhaust air from said proposed vehicle air system.

Curtner teaches [Pg 3, left Col, 3rd paragraph] engineering analysis tools to assist in the calculation/determination of compressed air system capacitance, mass properties, pressure drop calculations and other engineering quantities that are combined into a system of equations relating the components of the air system. Curtner also teaches [Pg 4, left Col, 3rd paragraph] simulations that are created by selecting compressed air objects along with user-supplied object parameterization information and simulation definition information such as duration and outputs desired. Curtner further teaches a demonstration window use to convey the state of the air system in terms of compressor power and flow, storage capacity depletion, supply piping pressure loss and load consumption.

Curtner does not expressly teach selective operations of the system's components, such as the air compressor or a pneumatically operable device, to exhaust from /replenish air to the vehicle air system.

Nishar teaches [Col 6, lines 9 - 14] monitoring parameters such as air compressor duty cycle, cycle time, wet tank pressure and service break events to aid in the diagnosis of air leaks and unusual braking patterns in order to increase the life of the air compressor.

Li teaches [Col 8, lines 52 - 64] that in addition to the analysis of data such as duty cycle of the compressor, length of cycles, total compressor pump operating time and reservoir pressure change rates, all parameters which can be readily derived from the ECU can provide valuable information relating to service diagnostics for warranty purposes. Li further teaches that by monitoring the duty cycle of the air compressor, unusual activities indicating air leaks in the compressed air system can be identified such leaks in the vehicles air system can cause the air compressor to run more often than necessary and for longer periods of time thus reducing the fuel economy and increasing the overall power consumption of the air compressor rendering the vehicle more expensive to operate.

It would have been obvious to one of ordinary skill in the art, at the time of the invention, to simulate a proposed vehicle air system by selecting compressed air objects along with user-supplied object parameterization and simulation definition simulation, as taught by Curtner, to identify air leaks and unusual braking patterns, as taught by Nishar, in order to identify and avoid vehicle air system configurations that reduce the fuel economy and increase the overall power consumption associated which operating the system as taught by Li.

6-5. As regard to independent claims 9 and 18 and dependent claims 10, 12, 14, 15, these claims are drawn to a method for predicting performance of a vehicle air system comprising:

- inputting into a computer data that simulate a proposed vehicle air system, including:

(i) data that describe a simulated air compressor of the proposed vehicle air system; and

(ii) data that describe a simulated pneumatically operable device of said proposed vehicle air system;

- using said computer to simulate operation of said proposed vehicle air system over a simulation time period, said simulation operation including:

  (i) selectively simulating exhaustion of air from said proposed vehicle air system in response to simulated operation of said pneumatically operable device; and

  (ii) selectively simulating addition of air to said proposed vehicle air system in response to simulated operation of said air compressor', and,

- outputting data from said computer that describe said simulated operation of said proposed vehicle air system such as the compressor duty cycle.

Curtner teaches [Pg 4, left Col, 3rd paragraph] a method of simulating and modeling (predicting) the performance of a compressed air system comprising:

- inputting data describing a simulated air compressor as part of the proposed vehicle air system [Pg 4, left Col, 2nd & 3rd paragraphs]and allowing users to create new specialized component models [Pg 2, Technical Basis section];
- using a computer to simulate a proposed compressed air system [Pg 4, Conclusion section]; and
- providing standardized reports and assessments (output data) of compressed air system features [Pg 2, Technical Basis section].

Curtner does not expressly teach inputting data describing simulating a vehicle air system, simulating a pneumatically operable device or selectively simulating addition of air to the proposed compressed air system in response to simulating the operation of the proposed system's air compressor.

Nishar teaches [Col 2, lines 20 - 35] an air compressor system which provides air to a vehicle's air powered (pneumatically operable) devices such as service brakes, air suspension, windshield wipers, etc.. Nishar also teaches [Col 6, lines 9 - 14] monitoring parameters such as air compressor duty cycle, cycle time, wet tank pressure and service break events to aid in the diagnosis of air leaks and unusual braking patterns in order to increase the life of the air compressor. Nishar further teaches [Col 8, lines 10 - 36] assessing the performance of a proposed vehicle compressed air system following several different driving and road conditions, break application pressure information and air dryer functionality.

Li teaches [Col 1, lines 17 - 29] that automotive vehicle design has advanced to a state in which computer-aided design techniques are frequently utilized to develop the new vehicle in a virtual environment and that computer-aided design is especially beneficial in optimizing the various systems incorporated within a vehicle, to maximize design and functional capabilities of the vehicle systems. Li also teaches [Col 8, lines 52 - 64] that in addition to the analysis of data such as duty cycle of the compressor, length of cycles, total compressor pump operating time and reservoir pressure change rates, all parameters which can be readily derived from the ECU can provide valuable information relating to service diagnostics for warranty purposes. Li further teaches that by monitoring the duty cycle of the air compressor, unusual activities indicating air leaks in the compressed air system can be identified such leaks in the vehicles air system can

cause the air compressor to run more often than necessary and for longer periods of time thus reducing the fuel economy and increasing the overall power consumption of the air compressor rendering the vehicle more expensive to operate.

It would have been obvious to one of ordinary skill in the art, at the time of the invention, to modify the compressed air system software simulation tool as taught by Curtner to predict the performance of a vehicle compressed air system comprising an air compressor and air powered (pneumatic) devices and monitor parameters such as air compressor duty cycle, cycle time, air dryer performance, wet tank pressure and service break events to aid in the diagnosis of air leaks and unusual braking patterns in order to increase the life of the air compressor as taught by Nishar thus to maximizing the design and functional capabilities vehicle systems as taught by Li.

6-6. Claim 11 is drawn to the method of predicting the performance of a vehicle air system further comprising:

- comparing said duty cycle to a predefined threshold; and,
- recommending modification of said proposed vehicle air system if said duty cycle exceeds said threshold.

Curtner teaches [Pg 1, left Col, 2nd paragraph] a software tool that allows engineers to construct simulations, perform design and tradeoff analysis of compressed air systems.

Curtner does not expressly teach comparing compressor's duty cycle to a predefined threshold and recommending modifications to the proposed air system if the duty cycle exceed said threshold.

Nishar teaches a method [Col 3, lines 29 - 33] wherein a given mode of the air compressor is maintained for a predetermined period of time when the air compressor is

operating between predetermined pressures (threshold) to prevent excessive cycling of the air compressor.

Li teaches [Col 7, lines 55 - 67] a method that evaluates a preliminary design using an analysis tool, compares the results of the evaluation to predetermined performance criteria (threshold), and if the analysis does not meet the predetermined performance criteria the method revises the characteristics of the preliminary design. Li further teaches [Col 1, lines 48 - 60] that it is known that knowledge-based design methods are being utilized in designing vehicle systems that provide advice, to the user of the method, learned from knowledge guidelines based on lessons learned from previous designs, and engineering and manufacturing experience and that advantageously, knowledge-based design techniques maximize the amount of knowledge utilized, while developing new vehicle systems in a minimal period of time.

It would have been obvious to one of ordinary skill in the art, at the time of the invention, to modify the compressed air system simulation software tool as taught by Curtner to monitor compressor cycling during a predetermined period of time, as taught by Nishar, and comparing an evaluation of a preliminary design of the air supply system, using an analysis tool, to a predetermined performance criteria and providing advice/revising the preliminary design characteristics if the analysis does not meet the predetermined design characteristics in order to develop a new vehicle system in a minimal period of time as taught by Li.

6-7. Claim 13 is drawn to inputting data that describe a simulated air dryer of said proposed vehicle air system.

Curtner teaches a compressed air simulation tool comprising a component window [Fig 2 and corresponding text] within which a user selects and parameterizes the components of the

compressed air system and that allows "super-users" to create new or specialized component models.

Curtner does not expressly teach inputting data to describe a simulated air dryer of the proposed compressed air system.

Nishar teaches [Fig 1 and corresponding text] a vehicle air system comprising an air dryer and that the air dryer primarily functions as a desiccant which removes moisture from the compressed air in order to prevent downstream freeze ups and corrosion of the air lines, air tanks and valving components. The dryer also functions as a sump for oil and air contaminants, which in effect increases the life of the air system.

Li teaches [Col 3, lines 27 – 38] a method of designing a vehicle system that uses a generic parametric driven design process and that the advantage of this approach is that allows flexibility in vehicle design and engineering analysis of the design in a fraction of the time required using conventional design methods.

It would have been obvious to one of ordinary skill in the art, at the time of the invention, to modify the compressed air simulation tool as taught by Curtner to accept input data to simulate the operation of an air dryer component to identify its impact on the proposed vehicle compressed air system as taught by Nishar to take advantage of the flexibility of using a parametric driven design process in order to reduce the time required to design and perform engineering analysis of a vehicle compressed air system as taught by Li.

6-8. Claim 16 is drawn to the step of inputting data that describe proposed use of a vehicle on which said proposed vehicle air system is to be used.

Curtner teaches [Pg 4, left Col, 3rd paragraph] simulations that are created by selecting compressed air objects along with user-supplied object parameterization information and simulation definition information such as duration and outputs desired.

Curtner does not expressly teach simulation different pneumatically operable devices such as, air suspension, pneumatic brakes or windshield wipers.

Nishar teaches [Col 1, lines 11 -15] that modern vehicles contain air compressors which are used to charge an air tank from which air-powered systems, such as service brakes, windshield wipers, air suspension, etc., can draw air. Nishar also teaches: assessing the performance of a proposed air compressor system following several different driving and road conditions [Col 8, lines 10 - 36], break application pressure information [Col 5, lines 37 - 56], and an air dryer which primarily functions as a desiccant which removes moisture from the compressed air [Col 4, lines 41 - 44].

Li teaches [Col 7, lines 35 - 45] evaluation of a preliminary model by comparing it to design or performance expectations.

It would have been obvious to one of ordinary skill in the art, at the time of the invention, to create compressed air simulations using object parameterized and simulation definition information, as taught by Curtner, to simulate a vehicle's air-powered system as taught by Nishar to ensure that the proposed system meets design or performance expectations as taught by Li.

Allowable Subject Matter

7. Dependent claims 5-8, 17, and 19-20 are not taught by the prior art on record and objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Applicant's Arguments

8. Applicant argues the following:

8-1. The Curtner Reference

(1) "While the Curtner reference includes a general discussion of the software's functionality, the reference includes little, if any, specific discussion of the system architecture, operating parameters, specific data inputs and outputs, data flow, calculations, and/or modeling capability of the software (see, for example, FIGS 2 and 3A-B of the Applicant's disclosure)" (page 8, paragraph 2, Response).

8-2. Applicant's Claimed Invention is Not Obvious in View of the Cited References

(2) "Applicant traverses the Patent Office's rejection of claims 1-20 because (i) the Curtner reference is not an enabling disclosure; (ii) there is no reasonable expectation of success; (iii) the cited references collectively do not teach all of the claim limitations; and (iv) the Patent Office has clearly used hindsight in the identification of the cited references for the purpose of finding the claimed invention obvious under 35 U.S.C. 103(a)" (pages 11-12, Response).

Response to Arguments

9. Applicant's arguments have been fully considered.

9-1. Applicant's argument (1) is not persuasive. The Curtner Reference discloses the XCEED™ software tool which allows engineers to create textual, mathematical and graphical descriptions of compressed air systems including, but not limited to, compressors, filters, dryers, storage vessels, cooling equipment, piping and utilization equipment (Abstract). The user may construct simulations, perform design and tradeoff analyses directly from within the XCEED™ environment (Introduction, page 1, paragraph 1). For example, the tool's feature set is shown in Figure 1. Exemplary modeling capabilities are shown in Figures 2-4 including organized component definitions, built dynamic demonstration system, and displayed simulation response to specific event. Furthermore, compressed air is a significant utility used in buildings, manufacturing and process industries (Introduction, page 1, paragraph 1). Therefore, in general, the compressed air system is well known to one of ordinary skill in the art.

Applicant also refers to FIGS 2 and 3A-B of the disclosure to show some specific information related to vehicle air system. However, none of them has been specifically claimed in currently rejected claims. For example, independent claims 1, 9, and 18 recite "vehicle air system" in the preamble only. For the purpose of claim examination with the broadest reasonable interpretation, an air compressor or a pneumatically operable device of a proposed vehicle air system would not be a vehicle air system specific component. A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative

difference as compared to the prior art. See *In re Casey*, 370 F.2d 576, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 312 F.2d 937, 939, 136 USPQ 458, 459 (CCPA 1963).

9-2. Applicant's argument (2) regarding claims 5-8, 17, and 19-20 is persuasive. The rejections of claims 5-8, 17, and 19-20 under 35 U.S.C. 103(a) in Office Action dated June 17, 2004, have been withdrawn. Regarding claims 1-4, 9-16, and 18, Applicant's argument (2) is not persuasive as detailed in section **9-1** above.

Conclusion

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

11. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Herng-der Day whose telephone number is (571) 272-3777. The Examiner can normally be reached on 9:00 - 17:30. Any inquiry of a general nature or relating

to the status of this application should be directed to the TC 2100 Group receptionist: (571) 272-2100.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Jean R. Homere can be reached on (571) 272-3780. The fax phone numbers for the organization where this application or proceeding is assigned is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Herng-der Day H.D
May 3, 2005

Thai Phan
Thai Phan
Patent Examiner